

Ecological Problems of St. Petersburg and Leningrad District Underground Water Resources Employment

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Goal and Scope. The amount of water flow and the degree of pollution are influenced by the conditions of water-bearing systems. Radon takes a special place among radioactive components of underground waters. Radon, with its daughter radioactive decay products, accounts for approximately 70% of the annual individual radiation doses to people from ground radiation sources. Regional research showed that radon concentration in district underground waters vary considerably within the limits of 4-1700 Bq/L.

Methods. The anomalies in Leningrad district underground waters are formed by the connection with bedrock of high uranic mineralization and with other lithological and hydrodynamic factors.

Zones with high radon danger are located:

- ?? On the North of Karelian isthmus along Finland's border
- ?? Along the Gulf of Finland and Baltic-Ladoga Ledge

The use of underground waters in these areas requires strict precautionary measures.

Results and Conclusions. Pollution of underground waters can be expressed as an increase of natural components, and at the same time an appearance of specific substances of artificial origin (non-organic [cyanides, radonides], or organic [oil products, pesticides, and so on]).

The territory of the St. Petersburg industrial zone is the most active polluter of atmospheric precipitants. The area of aerosol precipitation around St. Petersburg is more than 5000 km². As a result about 10 tons of pollution falls on every 1 km² of territory. The MEPAS-RV system worked out by the U.S. Battelle-Pacific Northwest National Laboratory will be used for risk assessment.